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Compliments of the Author.

-CONSUMPTION NOT CONTAGIOUS.

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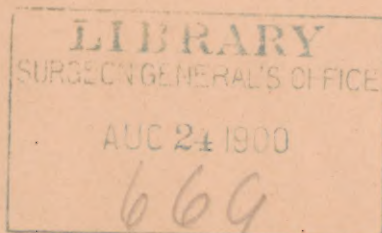
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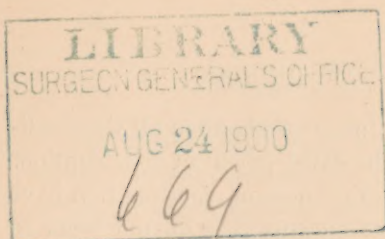


*Read before the College of Physicians,*

*June 2, 1897.*







## CONSUMPTION NOT CONTAGIOUS.

BY CHARLES WINSLOW DULLES, M.D.

[Read June 2, 1897.]

IN the past eight or ten years the newspapers of most of our cities have contained numerous statements intended to prevent the spread of consumption by convincing the people that the disease is contagious. These statements have usually been made by too enthusiastic individuals in the profession, and sometimes by Boards of Health acting in their official capacity; but I do not know that any thoroughly conservative and dignified medical body has ever recommended the compulsory notification of consumption, although the matter has been repeatedly discussed by such bodies. The motives of those who wish to impress upon the community the idea of the contagiousness of consumption must not be questioned, but it is not improper to suggest that this theory may be somewhat strained in its application. I have for years been interested in this subject, partly from my connection with the Rush Hospital for Consumption, in Philadelphia, and partly from the interest every one feels in the matter; and I have collected some notes in regard to it that confirm the conviction founded on my own observation that it is improper to speak of consumption as a contagious disease, and my doubt of the propriety of considering it as to any marked extent infectious. I know that a number of interesting coincidences have been observed, showing the frequent occurrence of consumption in certain buildings; but I think a just estimate of the significance of these observations cannot be made at present, and that they deserve critical attention before they are regarded as conclusive; for it does not appear from what is recorded that the reporters and col-



lectors of these cases have taken into consideration all the conditions that might tend to promote the development of consumption.

Almost all believers in the infectiousness of consumption have founded their arguments upon experiments that do not seem so conclusive when we reflect that the results of inoculation experiments conducted upon animals of a weak and unresisting constitution, and under circumstances most favorable to the destruction of their health and life, ought not to be compared without reserve to the dissimilar conditions of human beings who usually have the supposed *materies morbi* brought into contact with their unbroken cutaneous or mucous surfaces and, in the case of the lungs, only after sifting through the nasal passages.

A curious line of argument in support of the contagion theory, just now, is the claim that since the general promulgation of this theory there has been a decrease in the number of deaths from this disease. This diminution is, I think, real, although in some places it has been unquestionably exaggerated owing to a misapprehension of those who report it. For example, a certain elation has been felt by the New York Board of Health over a reduction of the mortality from consumption in that city. This elation was not at all remarkable, but it was corrected when attention was called to the fact that the figures used in recent years included rural sections of New York that did not come into the statistics of previous years, and to the fact that restrictive laws adopted by Boards of Health often put too great a strain upon the candor of medical men, and lead them to report cases that they have reason to believe are cases of consumption under the head of some other disease, so that, for example, pneumonia, bronchitis, congestion of the lungs, and such titles are employed to cover up what is regarded as an uncomfortable fact.<sup>1</sup> I am informed also that in Philadelphia certain insurance societies refuse to pay their policies in case of death from consumption, and that as a consequence many cases of consumption are now reported under other titles. It is impossible, therefore, to speak very positively as to the exact rate of diminution of consumption; but the statistics of all civilized countries show that for

<sup>1</sup> Medical Record, February 13, 1897, p. 244.

the last twenty-five or more years there has been a pretty constant and fairly even diminution in the number of deaths from consumption, quite irrespective of any attempts at isolation of the cases or systematic disinfection of the sputa. Very recently Dr. Samuel W. Abbott has published an interesting letter,<sup>1</sup> accompanied by a diagram showing the comparatively even reduction of the mortality from consumption in Massachusetts in forty years, from 1853 to 1893, from forty-two to twenty-three per ten thousand of the population.

The zeal with which some medical men have pressed the idea that consumption is a contagious disease would naturally lead to a very exaggerated fear of the disorder, and in spite of the feeble and scattered and utterly inadequate attempts to limit its dispersion, it is comforting to observe that although countless millions of tubercle bacilli are spread abroad in public places and public conveyances, they do not produce the terrible results that one might naturally expect. It is, furthermore, comforting to know that it is hard to find in the world a single careful observer connected with an institution in which large numbers of consumptives are gathered who accepts the theory that consumption is in any proper sense of the term a contagious disease. I am not unaware of the instances, cited by a few writers, that point to a certain degree of communicability of consumption, or unfamiliar with papers like that of Dr. Kolb, of Kaiserlauten;<sup>2</sup> but these may be offset by the observation of those who have been most in contact with large numbers of the disease. Dr. C. Theodore Williams, of the Brompton Hospital for Consumptives, in London, published an article in 1882, in which he gave a summary of the experience of this great hospital in the matter of the contagiousness of consumption. The figures indicate that only four persons in a number that I think may be fairly estimated at about five hundred, including resident medical officers, clinical assistants, matrons, superintendents, nurses, servants, gallery-maids, porters, secretaries, clerks, dispensers, chaplains, physicians, and assistant physicians, had contracted the disease in

<sup>1</sup> Journal of the American Medical Association, April 10, 1897.

<sup>2</sup> Beobachtungen über Tuberculose in Gefängnisse. Zeitsch. für Hygiene und Infectiouskrankheiten, 1895, xix., 484-506.



the hospital.<sup>1</sup> In 1883 Dr. Williams said, at a meeting of the Medical Society of London: "the evidence of the Brompton Hospital distinctly negatives any idea of its contagion in the ordinary sense of the word."<sup>2</sup> At the same time, Dr. Drysdale said that he had for several years searched diligently for a case of transmission of the disease among his phthysical patients, but had failed to find one.<sup>3</sup> In 1895, Dr. Arthur Ransome, Professor of Public Health in Owens College, Manchester, published an interesting article entitled "Consumption Scare,"<sup>4</sup> in which he refers to the alarming leaflets scattered broadcast in England (as they have been scattered in this country), and maintains that hospitals for consumption are not hotbeds of infection, as according to the contagion theory they should be, but that the universal testimony of physicians of these institutions is that "no such conveyance of the disease can be traced in any such institution." He furthermore says (and in this my own observations agree), "it would almost appear from the statistics brought forward, that their wards were the safest places in which susceptible persons could take up their abode." "I might say," he adds, "that my own personal experience after fifteen years at the Manchester Hospital for Consumption would be entirely favorable to this view."

At a meeting of the Cambridge Medical Society of England, some time ago,<sup>5</sup> the communicability of phthisis was discussed, all the members having been asked by post for their experience. Out of thirty-eight replies, thirty-four were negative. At that time a statement was made by Mr. Lawrence Humphrey of the number of cases in which contagiousness could be suspected in the Brompton Hospital, as follows: Of 4 resident medical men (one for twenty-five years) none had any lung disease; of 6 matrons, none had consumption; of 150 resident clinical assistants, 8 became consumptive, 5 died, but in only one was the disease developed during residence. Since 1867, of 101 nurses, only one died of phthisis, and that after leaving the hospital. Before 1867, 6 died, 3 of

<sup>1</sup> British Medical Journal, September 30, 1932.

<sup>2</sup> Lancet, February 24, 1883, p. 312.

<sup>3</sup> Ibid. p. 321.

<sup>4</sup> Medical Chronicle, January, 1895.

<sup>5</sup> Lancet, February 24, 1883, p. 323.

phthisis, but only one became ill and consumptive while resident, and she had a consumptive sister. Of 32 gallery-maids, since 1867, none developed phthisis while in the hospital. Of 20 house-porters, 5 died, but none of consumption.

At the Chest Hospital, Victoria Park, London, during the last fifteen years, of 5 resident medical officers, all were alive and well; of 2 matrons, none had consumption, and no clinical assistant was known to have developed lung disease at the hospital. One nurse, out of 50 or 60 in the last few years, became consumptive while at the hospital, and died after a year's illness.

Very recently Dr. Stubbart, speaking for the only hospital in New York for this class of patients, stated that there had not been a case of infection among the attendants.<sup>1</sup> The experience at the Rush Hospital for Consumption, in Philadelphia, has been precisely the same.

In this connection I would refer to a paper by Kirchner,<sup>2</sup> who sought many times for tubercle bacilli in the dust of rooms occupied by a large number of consumptive patients, and found them in only one instance. The comparative innocuousness of dust that might fairly be considered the most dangerous conceivable is further indicated in an article on the "Dissemination of Tuberculosis by Infected Dust,"<sup>3</sup> in which Mr. Clifford Beale, Physician to the Victoria Park Hospital for Consumption, of London, says: "The theory has been so readily established that tuberculous disease may be, and probably often is, conveyed into the receptive lungs by means of inhaled dust, and precautions against the possibility of such conveyance have been so widely advocated, that it would seem to be superfluous at the present time to offer any observations or criticisms which might tend to throw doubt upon so simple and satisfactory a demonstration; but, however satisfactory the facts may appear to be when looked at from the purely experimental point of view it must be confessed that from the clinical standpoint they admit of considerable discussion. In order to satisfy the clinical

<sup>1</sup> Medical Record, February 13, 1897.

<sup>2</sup> Untersuchungen von Staub auf Tuberkelbacillen. Zeitschr. für Hygiene und Infektionskr., 1895, xix. pp. 153-160.

<sup>3</sup> Lancet, February 24, 1894, pp. 470, 471.



mind it is necessary that evidence should be forthcoming to prove that those who are especially liable to the inhalation of infected dust should also be more prone to tuberculous disease than others who have not been so exposed. It is to the records of the hospitals for the treatment of phthisis that we should naturally turn for such evidence, and more especially to the records of the years anterior to the publication of Dr. Cornet's observations. It has, however, been abundantly proved that no such evidence is obtainable in this country. To take the experience of the chest hospitals at Victoria Park and at Brompton respectively, the figures collated and published by Dr. Andrew and Dr. Theodore Williams made it clear that no special liability to tuberculous disease could be demonstrated among the medical and nursing staffs of these hospitals during a period of twenty years. Quite recently Drs. Heron and Chaplin, in an article entitled "The Relation of Dust in Hospitals to Tuberculous Infection,"<sup>1</sup> published the results of a series of experiments made upon susceptible animals by actual injection of dust taken from wards occupied almost exclusively by tuberculous persons, and have shown that such dust possessed but little infective power. From these observations it must be concluded that the dust of a consumption hospital is not especially dangerous to those who must of necessity inhale it, nor does it always set up tuberculous disease in susceptible animals when introduced by way of direct inoculation."

Mr. Beale then describes a study of the effect of breathing dust that might be assumed to be as thoroughly filled with the bacilli of tuberculosis and their spores as any dust could be. He inquired of some of the largest paper-mills in England and Scotland, through the boards of managers and medical officers, in regard to the occurrence of tuberculous disease among persons employed in their mills, and especially in the sorting-rooms, at a time when hospitals for consumption did not practice disinfection. In the latter, as is well known, there is an enormous amount of dust suspended in the air, which is constantly breathed by persons at the age in which tuberculosis is most easily acquired. Although he found that no attempt

<sup>1</sup> The Lancet, January 6, 1894.



was made to disinfect the rags, he could not find that there was any frequent occurrence of tuberculosis in the persons exposed to this presumptive danger. He found also that it was the opinion of persons connected with paper-mills that work in this particular atmosphere was not a cause of tuberculous disease. He found no case whatever of tuberculosis of the skin. Some replies which he quotes indicate that these were carefully prepared, with due appreciation of the importance of the subject. He admits that there is no positive evidence that in any of the places investigated there were rags infected with tuberculous matter. But the conclusion to which he has come is, that the facts he has gathered "go to support the view derived from the vital statistics of the consumption hospitals that presumably tuberculized dust is not a striking factor in the dissemination of tuberculous disease," and that "clinical observation abundantly shows that, in those very places where dust is most likely to be tuberculized, tuberculous disease does not appear to be disseminated." This interesting article confirms, as the author states, the deductions of Drs. Heron and Chaplin in their paper on the relation of dust in hospitals to tuberculous infection, in which they published the results of a series of experiments made upon susceptible animals by injection of dust taken from wards occupied almost exclusively by tuberculous persons, and have shown that such dust possesses but little infective power. From these observations it must be concluded that the dust of a consumption hospital is not especially dangerous to those who must of necessity inhale it, nor does it always set up tuberculous disease in susceptible animals when introduced by way of direct inoculation.

In the article alluded to, Drs. Heron and Chaplin<sup>1</sup> describe one hundred inoculation experiments made with dust from long uncleaned passages, shutters, pieces of furniture, and so forth, in the Brompton Hospital. In the entire series they produced tuberculosis by inoculation in guinea-pigs only twice. In reporting their own investigations they say it is very easy to attach too much importance to the results of research of this kind when it deals with only one hundred experiments, adding: "We, however, think we are justified

<sup>1</sup> Lancet, January 6, 1894, pp. 14-16.

in stating that the outcome of our work shows that in the wards and out-patient department of a hospital where a very moderate amount of care is taken to prevent the spread of infection from the expectation of tuberculous persons, there is, within the limits of our observations, surprisingly little evidence of the escape of tuberculous bacilli to become a source of infection. Now, although it is true that the tuberculous bacillus probably retains its virulence at least as well as any other organism does when it is living a non-parasitic life, still it must be remembered that there exists no experimental proof to guide us where human beings are concerned, and, therefore, it is not known that it follows because tuberculous bacilli will kill a guinea-pig or a rabbit after the micro-organism has been lying in sputa which have been drying on a floor for, say, six weeks—we say it does not follow that, because the bacilli can do this—they could, therefore, in like circumstances, kill a man. It is known that the anthrax, which will surely kill a guinea-pig, is not by any means certain to kill an ox. In like manner there exists no proof that the tubercle bacillus which is taken from drying sputum, and which is surely fatal to the guinea-pig, will also kill a human being. It may be highly probable that it will do so in favorable circumstances, but that is the utmost that can be safely said within the limits of our present knowledge.”

The observation of large hospitals for consumption is borne out by that of resorts for consumptives. It nowhere appears that the gathering of consumptives in certain places is an occasion of consumption among the original inhabitants of these places. Within a year it has been reported that there was a slight increase in the number of deaths from consumption in the Adirondacks in New York, but this is attributed by Dr. Trudeau, not to communication of the disease, but to deaths of persons who have come to the Adirondacks already consumptive and too late to be saved from death. In German health-resorts, like that of Göbersdorf, it has been found that the death-rate diminished after the establishment of institutions for the treatment of consumption. There is a simple and natural explanation for this which does not compel us to go so far as to assert that the proximity of consumptives is *per se* an advantage. It is enough now to show that it is not *per se* a



disadvantage. Very recently an interesting letter was published by Dr. Clinton Wagner, of New York,<sup>1</sup> quoting one from Dr. S. E. Solly, of Colorado Springs, who sums up his experience and observation as a specialist by saying that "the dangers of contagion from a consumptive are so easily controlled that it is by no means necessary to separate consumptives from healthy persons. . . . At Colorado Springs the consumptives mingle with the other residents of the city on all occasions—at church service, theatre, concerts, and in the overheated and crowded rooms of private residences during social functions; they reside in the same hotels, boarding-houses, and private dwellings with those not afflicted with the disease, and no attempt at isolation has been made. Notwithstanding this apparent indifference on the part of the local authorities to the contagiousness of the disease, only twenty cases have originated in Colorado Springs in twenty years."

Dr. Solly also says—to disarm a possible objection to the obvious deduction from these facts—"in the poorer lodging-houses of the town there are many ill-ventilated rooms, inside or on the north side of the building, inhabited by consumptives and their families, where recklessness of expectoration and carelessness of ordinary cleanliness are marked features of their domestic *ménage*; yet cases of contagion do not average more than one a year."

Dr. Wagner says, for his own observation: "At Davos-Platz, in Switzerland, where I spent a winter a few years ago, a very large number of consumptives were staying. The hotels were crowded, and of the fifteen hundred strangers in the village, about one thousand were consumptives. At the hotel at which I stayed there were about one hundred and twenty guests, about eighty of whom were consumptives. At Davos, during the winter, the invalid's day for outing is limited to four and one-half hours; the remainder of the twenty-four hours is spent within doors. No one stood in dread of contracting the disease, and no cases occurred in which it was conveyed from person to person. No special precautions were taken by the physicians and local authorities to prevent contagion, other than good ventilation of the living- and bed-rooms.

<sup>1</sup> Medical Record, February 6, 1897.

As in Colorado Springs, no cases of the disease originated at Davos."

At the last meeting of the American Climatological Association, Dr. Vincent Bowditch, of Boston, earnestly deprecated the reckless and extravagant utterances regarding the contagiousness of pulmonary consumption, made by medical men as well as laymen in a recent discussion in the daily press, and "showed that in well-regulated hospitals or sanatoria for consumptives contagion is almost unknown, or, at least, that with ordinary cleanliness and care as to the destruction of the sputa, the danger is reduced to a minimum."<sup>1</sup>

Notwithstanding these facts and others that would be mere repetitions of them from equally competent authorities, a few men still manage to disturb the profession and alarm the community from time to time with exaggerated statements on this subject, overlooking the fact that present observations and historical occurrences demonstrate that consumption is not contagious (in the ordinary sense of this term) and that extreme measures of isolation and disinfection are unnecessary and useless. Two hundred years ago in places as remote as Ireland and Italy, consumption was regarded as contagious, and frantic attempts were made to limit its ravages. Naples set a custom that would hardly be emulated by our zealous American Boards of Health. In Naples and Rome it was customary to sacrifice the clothes and furniture used about the sick, and even to scrape the walls and tear down the woodwork of the chambers in which they had been sick.

The subject of the contagiousness of consumption and compulsory notification was thoroughly discussed by the College in January, 1894, and notwithstanding the labored and ingenious arguments of those devoted to the contagion theory, the conclusion of the College was that the evidence did not justify such measures as the contagionists thought to be essential to limit what they call the spread of the disease.

It is questionable, in view of what has been already stated, for one to say, without qualification, that consumption is an infectious

<sup>1</sup> Journal of the American Medical Association, November, 1896, p 1016.



disease; and, as I have stated in a paper read before the Medical Society of the State of Pennsylvania, May 18, 1897,<sup>1</sup> those who have alarmed the world by expressing extreme views in regard to its infectiousness have committed a serious blunder, for, while observation justifies the belief that there is distinct danger that persons deprived of their liberty, with little opportunity for exercise, whose habits of life are changed, whose food may be insufficient, and who are herded with others suffering with consumption, may contract the disease from them (as shown by the statistics of convents and prisons), the malady can hardly be called infectious in a broad and general way. As Dr. Russell, of Glasgow, has said, "In the academic sense it is infectious; in the popular sense it is not;" and those who wish to secure the observation of prudent rules of health would do well to avoid those extreme pronouncements which have been made in this country and in some others, and to rather copy the careful and discreet utterances of the French Society for the Prevention of Pulmonary Phthisis and Other Forms of Tuberculosis, which, in a circular intended for general distribution, makes a statement that can be thoroughly indorsed by those who wish to do what they can to prevent the spread of this disease, namely:

"We know further that the consumptive is not in the least dangerous by contact or proximity; that it is never his body nor his breath which is hurtful; and that we can chat with him for hours, live with him for years, and even sleep in his room and give him the most constant care without running any serious risk, *provided we take certain precautions*, the chief of which is to collect his expectoration, and not to delay the destruction of his sputum until it becomes dry and is disseminated as dust in the air."

Finally, although I have just used the word "spread" in connection with this disease, I think it is well to add that consumption is not a disease that is now spreading; on the contrary, in the time covered by most accurate vital statistics of this country and Europe, it has diminished considerably in frequency. Some earnest advocates of restrictive measures have already claimed that the reductions observed within the past few years have been due to the

<sup>1</sup> "Comforting Facts about Consumption." Medical Age, June 10, 1897.

attempts that have been made to restrict it by boards of health ; but, fortunately, the community has a better reliance than this weak and inefficient one, and is encouraged by the knowledge that for many years there has been a comparatively steady decline in the proportion of cases of consumption. The disease is not spreading, as alarmists make the community to fear, but is actually contracting ; and the hope may be entertained that, with the inculcation of reasonable and proper precautions, without spasmodic and violent measures, the ravages of consumption will become less and less, and it will soon cease to be the scourge and terror that it now is.





